

SIKORSKA TOMICKA, H.

POLAND / Analytical Chemistry. Analysis of
Inorganic Properties.

E

Abs Jour: Ref Zhur-Ihimiya, No 19, 1958, 64220

Author : Sikorska-Tomicka Halina, Czerepko Kazimierz

Inst : Not given

Title : Investigation of Derivatives of Caprolactam.
II. Reactions of Caprolactam with Bi^{3+} ions.

Orig Pub: Chem. Anal., 1957, 2, No 2, 168-172

Abstract: It was established that with the addition of a 5% solution of caprolactam to an aqueous solution of orange-yellow iodobismuth complex, obtained as a result of a reaction of KI (30% solution) with Bi^{3+} in a HNO_3 medium, a red-orange sediment of a complex compound of caprolactam is formed with a probable formula $(\text{C}_6\text{H}_{11}\text{OH})_3 \cdot 2\text{BiI}_3 \cdot 6\text{HI} \cdot 20\text{H}_2\text{O}$, soluble in 30% KI,

Card 1/2

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POLAND / Analytical Chemistry. Analysis of Inorganic Substances: E-2

Abs Jour: Ref Zhur-Khimiya, No 1, 1959, 906.

Author : Sikorska-Tomicka, H., Popwicz, J., Czerepko, K.
Inst : Not given.
Title : A New Method for Chromatographic Detection of Bi^{3+} , Pb^{2+} , Cu^{2+} , and Hg^{2+} .

Orig Pub: Chem. analit., 1957, 2, No 3, 262-265.

Abstract: For the detection of Bi^{3+} , Pb^{2+} , Cu^{2+} and Hg^{2+} , a strip of filter paper ~20 cm. in length is inserted into a hermetic chamber and one end is immersed into a solution containing a mixture of propanol, 2 N HNO_3 and caprolactam (60:39:1), and is chromatographed for 3 hours. The paper is then dried in air, immersed in a solution coloring reagent (2 grams KI, 5 grams caprolactam and 0.5 grams NaH_2PO_2

Card 1/2

SIKORSKA-TOMICKA, H.; CZEREPKO, K.

Complex compounds of caprolactam with Hg^{2+} ions. p. 3

CHAMIA ANALITYCZNA. (Komisja Analityczna Polskiej Akademii Nauk i Naczelna Organizacja Techniczna) Warszawa, Poland. Vol. 4, No. 1/2, 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, August 1959
Uncl.

SIKORSKA-TOMICKA, Halina

Turbidimetric determination of mercuric ions. Chem anal 5 no.2:269-
275 '60. (EEAI 10:3)

1. Zakład Chemii Ogólnej Akademii Medycznej, Białystok. Kierownik
Zakładu: Z-ca prof. Juliusz Popowicz.
(Turbidimetry) (Mercury) (Ions)

SIKORSKA-TOMICKA, Halina

Quantitative determination of bismuth ions on paper chromatograms.
Chem anal 6 no.5:771-774 '61.

1. Department of General Chemistry, Academy of Medicine, Bialystok.
Head of Department: Prof. dr. med. J. Popowicz.

SIKORSKAYA, L.

POLAND/Human and Animal Morphology - Blood and Organs of
Blood Production

Q-4

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70348

Author : Fel'tynovskiy, A., Sikorskaya, E.

Title : Observation by Electronmicroscopy of Erythrocytes
Treated by Several Amines

Orig Pub : Biul. Polskoy AN, 1955, otd.2, 3, No 8, 315-319

Abstract : The action of n-phenylenediamine, n-toluoldiamine and
n-aminophenol on erythrocytes was studied by means of
an electronmicroscope. The action of the studied amines
brought about in erythrocytes granulations, which diffe-
red in morphology of typical Heinz bodies, appearing un-
der the action of phenylhydrazine. A more detailed cha-
racterisation of granulation requires further biological
and chemical investigation.

Card 1/1

- 69 -

GOROSHCHENKO, Y.G.; SIKORSKAYA, E.K.

System $\text{FeO} - \text{SO}_3 - \text{H}_2\text{O}$ at 25°C . Zhur.neorg.khim. 10 no.4:950-954
Ap '65. (MIRA 18:6)

ZUB, M.P., gornyy inzh. (Alma-Ata); SIKORSKAYA, K.A., gornyy inzh.
(Alma-Ata)

"Methods of determining the performance of "Donbass" cutter-loaders"
by I.M.Efremov. Reviewed by M.P.Zub, K.A.Sikorskaya. Ugol' 34
no.12:55 D '59. (MIRA 13:4)
(Coal mining machinery)
(Efremov, I.M.)

Sikorskaya, K. V.

Sikorskaya, K. V.

"The Effect of Pure Plant-Source Protein on the Development of Links." Moscow Veterinary Academy, for Higher Education USSR, Moscow, 1955. (Dissertation for the degree of Candidate in Biological Sciences)

1: Kizhnaya letnia! No. 2, 2 July 1955

SIKORSKAYA, N.G., starshaya meditsinskaya sestra (Khmel'nitskiy)

Improving the qualifications of medical nurses. Med.sestra 22
no.2145 P '63. (MIRA 1615)

(NURSES AND NURSING)

YEMEL'YAROV, P.I., DOKHODKOVA, M.G.; SERGETCHEVA, T.A., SIKOR. KAYA,
Ye.G.; SHVETSOVA, G.Ye.

Frequency of the detection of *Bacillus alcaligenes*, *dispar*
and *paracoli anaerogenes* during examination for dysentery.
Zhur. mikrobiol., epid. i immun. 42 no.6:52-56 '65.

(MIRA 18:9)

1. Khabarovskaya krayevaya i gorodskaya sanitarno-bakteriologicheskaya laboratoriya.

SIKORSKAYA, YELENA

SIKORSKAYA, Yelena.

Method of conducting classes on a school experimental plot. Biol. v shkole no.2:64-68 Mr-Ap '57. (MLRA 10:5)

1.Redaktor zhurnala "Biologiya v shkole" Pol'skoy Narodnoy Respubliki.

(Agr: culture--Study and teaching)

SIKORSKAYA, Ye.P., inzh.

Mechanized primary processing line of fruits for stewing. Kons.
i ov. prom. 13 no. 11:9-10 N '58. (MIRA 11:11)

1. Fruktovy tsekh Oleskogo konservnogo kombinata.
(Fruit--Preservation)

30161
P/045/61/020/011/004/004
B102/B108

24.7700 (1035, 1385, 1482)

AUTHORS: Gariat, W., Miguła, Z., and Sikorski, A.

TITLE: Preparation and the electrical and optical properties of cadmium antimonide

PERIODICAL: Acta Physica Polonica, v. 20. no. 11, 1961, 919 - 925

TEXT: CdSb was produced from a stoichiometric mixture of the pure elements (impurity content less than $10^{-5}\%$). Rapid cooling after melting (melting point 456°C) yielded a brilliant and brittle material, slow cooling a lustreless material of better mechanical quality. CdSb was purified by zone melting, which did not change its properties. X-ray investigation showed that the material consisted of large crystallites. Crackless specimens were chosen to measure electrical conductivity, Hall coefficient, and the dependence of resistivity on the magnetic field strength in the temperature range $78 - 370^{\circ}\text{K}$. The curves plotted for the two varieties of the material differed considerably. In particular, the Hall-mobility versus temperature curves have opposite inclinations: For the lustreless material $\ln \mu$ decreases linearly with increasing $1/T$, for

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B102/B108

Preparation and the...

the brilliant material $\ln \mu$ rises nonlinearly with $1/T$. Optical transmission and absorption were measured and compared for the two varieties. In the spectral range investigated ($0.5 - 15\mu$), the two modifications showed different behaviors. The position of the absorption edge could be found only for the brilliant CdSb. From thermo-emf measurements it was found that both modifications were of the n-type. At nitrogen temperature $n = 4.4 \cdot 10^{16} \text{ cm}^{-3}$ for the lustreless and $n = 5.5 \cdot 10^{17} \text{ cm}^{-3}$ for the brilliant variety. The electron concentration in both cases depends on the structural defects and deviations from the stoichiometric composition. The fact that the brilliant material contains more defects is ascribed to their freezing in during rapid cooling. For both varieties it was found that the mobility values as determined from Hall effect and conductivity differed considerably from those determined from the resistivity-versus-magnetic field curves: 106 and $420 \text{ cm}^2/\text{v}\cdot\text{sec}$ was found for the lustreless, 18 and $280 \text{ cm}^2/\text{v}\cdot\text{sec}$ for the brilliant modification. This is ascribed to the polycrystalline nature of the specimens. The maximum activation energies were found to be 0.082 eV for the brilliant and 0.37 eV for the

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B102/B108

Preparation and the...

lustreless material. The forbidden band widths were 0.41 eV and 0.53 eV, respectively. The discrepancies between electrical and optical test results may be due to complex band structure and degeneration. There are 8 figures and 7 references: 2 Soviet-bloc and 5 non-Soviet-bloc. The two references to English-language publications read as follows:
Tannenbaum, M., Briggs, H. B., Phys. Rev. 91, 1561 (1953); Burstein E. Phys. Rev. 92, 632, 1954.

ASSOCIATION: Institute of Physics, Polish Academy of Sciences, Warsaw

SUBMITTED: May 11, 1961

X

Card 3/3

S/081/62/000/013/051/054
B160/B101

AUTHORS: ~~Sikorski, Bronisław, Stepniowski, Ludwik, Grochowski,
Mieczysław, Świętorzecki, Karol~~

TITLE: Method of producing a fire-resistant composition for coating timber

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1962, 641, abstract 13P274 (Polish patent 42701, January 15, 1960)

TEXT: Two different kinds of condensation thermosetting resins (I and II) are mixed with a fire-resistant salt and a low-temperature hardening catalyst. Resin I is prepared by the solution of 100 parts by weight of urea in 260 parts by weight of 37% CH₂O followed by thorough mixing and condensation. The reaction is initiated by atmospheric oxygen and is attended by the evolution of heat. The temperature is raised to 90°C and held there for three hours (pH 5.2-5.5), after which 1 part by weight of novolak dissolved in CH₃OH is added to stop the reaction. The resulting resin is cooled, dried at -10°C and ground to a powder. Resin II is

Ca

Card 1/2



Category : RUMANIA/Electricity - Dielectrics

G-2

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1529

Author : Berdinski, I.P., Sikorski, I.A., Koblikova, A.G.

Title : On the Dielectric Constant of Lumber

Orig Pub : An. Rom.-Sov. Ser. silvicult.-ind. lemn. si hirt., 1956, 10, No 1, 122,125

Abstract : Translation from the periodical "Derevoobrabatyvayushchaya promyshlennost' " [Woodworking Industry] (see Ref. Zhur. Fiz, 1957, 1528).

Card : 1/1

SIKORSKI, J.

How we are drawing the plan of our school's neighborhood. p. 146
(Geografia W Szkole, Vol. 10, No. 3, May/June 1957)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 9, Sept 1957, Uncl.

SIKORSKI, J.; ...

"The Goodwin Institute of the Evening School of Architecture of Loda." p. 59
(Przedsiębiorstwo. Vol. 1, no. 2 Feb, 1954, Warsaw...)

Vol. 3, no. 6

See: Monthly List of East European Accessions, Library of Congress, June 1954, Uncl.

PEDZIWIATR, Mieczyslaw, mgr.; SIKORSKI, Jan, mgr.

A speedy method of dripping of injection fluids. Farmacja Pol
16 no.24:524-525 D '61.

SIKORSKI, Jan, mgr inż.

Measurements of accidental contact and step voltages under short circuit conditions in 110 kv networks. Part 2. Energetyka Pol 18 no.9:Suppl: Biul energopomiar 10 no.5:33-36 S '64

1. Electricity Section, Energopomiar Laboratory of Testing and Measurements, Gliwice.

SIKORSKI, Jan, mgr inz.

Accidental contact voltage and step voltage measurements in short circuits of a 110 kv network. Pt. 1. Energetyka Pol 18 no. 7: Suppl.:Energopomiar 10 no. 4:31-32 J1 '64.

1. Electric Division, Energopomiar Institute of Research and Measurements, Warsaw.

SIKORSKI, Jerzy, inż.

Modernized electric locomotive of the Et 21 series. Przegł
kolej mechan 13 no.2:42-3 F '61.

POLAND

PEDZIWIATR, Mieczyslaw and SIKORSKI, Jan; Pharmacy of the Military Institute of Aviation Medicine (Apteka Wojskowego Instytutu Medycyny Lotniczej)

"Setup for Sterile Suction-Filtration of Eye Drops."

Warsaw, Farmacja Polska, Vol 19, No 13-14, 25 Jul 63, p 284

Abstract: Authors show the picture and give a description of a simple apparatus, designed by themselves, for the filtration under suction of eye drops into small dispenser bottles under sterile conditions. There are no references.

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SIKORSKI, J.; BOKUN, K.

The role of flight-medical crew members in preventing disasters in aeronautic schools. p. 29.

WOJSKOWY PRZEGLAD LOTNICZY. (Dowództwo Wojsk Lotniczych) Warszawa, Poland,
Vol. 12, no. 5, May 1959

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 8, August 1959

Uncl.

SIKORSKI, Jerzy

Suppurative infections in hospitals. Pol. przegl. chir. 37 no.8:
761-768 Ag '65.

1. Z I Kliniki Chirurgicznej AM w Poznaniu (Kierownik: prof. dr.
S. Nowicki).

SIKORSKI, Jerzy; JELIASZEWICZ, Janusz; GRZEWIŃSKA, Helena

Distribution of staphylococci in carriers and in operated subjects.
Polski przegl. chir. 33 no.7/9:884-887 '61.

1. Z I Kliniki Chirurgicznej AM w Poznaniu Kierownik: prof. dr
St. Nowicki.

(STAPHYLOCOCCAL INFECTIONS trans)
(SURGERY OPERATIVE compl)

PIETA-POLONSKI, Eugeniusz; MACKIEWICZ, Zygmunt; SIKORSKI, Jerzy.

Adrenalectomy in the treatment of arteritis obliterans. Polski
przeł. chir. 35 no.9:980-982 '63.

1. Z I Kliniki Chirurgicznej AM w Poznaniu. Kierownik: prof.
dr. S.Nowicki.

*

SIKORSKI, Jerzy; GRZEWINSKA, Helena

Methicillin in the treatment of staphylococcal infections. Pol.
przepl. chir. 36 no.12:1415-1420 D '64

1. Z I Kliniki Chirurgicznej Akademii Medycznej w Poznaniu
(Kierownik: prof. dr. S. Nowicki).

SIKORSKI, Jozef, Mgr.inz.

The influence of the wheel position, and of the steering system
pinions on the stability of the car's motion. Techn motor 11 no.10:
342-347 0 '61.

SIKORSKI, Jozef, mgr inz.

Elastic rubber elements in automobile and trailer suspensions.
Techn motor 12 no. 6: 178-181 J^e '62.

SIKORSKI, Jozef, mgr inz.

Turn mechanisms of track-laying vehicles. Techn motor 13
no. 4: ~~12~~130 Ap '63.

SIKORSKI, Jozef, mgr inz.

Turn mechanisms of track-laying vehicles. Techn motor 13
no. 7: 231-232 J1 '63.

SIKORSKI, Leonard

Fittings for fluorescent and mercury-vapor lamps. Gosp paliw
11 no.1:22-27 Je '63.

1. Zaklady Wytworcze Aparatury Teatralnej i Oswietleniowej
A-20, Biuro Konstrukcyjne, Kozuchow.

SIKORSKI, Leonard

Fittings for fluorescent and mercury-vapor lamps. Gosp paliw
11 no.3:105 Mr '63.

1. Zaklady Wytworcze Aparatury Teatralnej i Oswietleniowej
A-20, Biuro Konstrukcyjne, Kozuchow.

NOWACKI, Jozef; SIKORSKI, Mariej

Chelaton therapy of acute thallium poisoning. Polski tygod. lek.
13 no.48:1931-1933 1 Dec 58.

1. (Z Oddzialu Chorob Zawodowych Szpitala Miejskiego im. Fr. Basseji
w Poznaniu; ordynator: prof. dr med. A. Horst). Adres: Poznan, ul.
Poznanska 55. OSR. Bad-Lecznicy Chorob Zawodowych Wewn. A.M.

(THALLIUM, pois.
ther., edathmil (Pol))
(EDATHAMIL, ther. use
thallium pois. (Pol))

HORST, Antoni; BLOK, Wojciech; MARKOWSKI, Ryszard; SIKORSKI, Maciej

Autopsy case of cork pneumoconiosis. Polski tygod. lek. 14 no.29:
1347-1349 20 July 59.

1. (Z Ośrodka Badawczo-Leczniczego Chorob Zawodowych Wewnętrznych A.M.
w Poznaniu; kierownik: prof. dr med. A Horst i z Zakładu Anatomii Patolo-
gicznej A.M. W Poznaniu; kierownik: prof. dr med. J. Groniowski).
(PNEUMOCONIOSIS, pathol.)

BARTOSZEWSKI, Adam, dr.; SIKORSKI, Radzislaw; STROCZYNSKA, Maria; TOS-LUTY, Sabina; UMINSKI, Jerzy, dr.

Statistical presentation of results of the complement fixation test in toxoplasmosis. Acta parasit Pol 8 no.21/32:451-460

1. The I Clinic of Diseases of Women and Gynecology, Medical Academy in Lublin. Director: Lieblart, Stanislaw, dr. (for Bartoszewski and Sikorski). 2. Department of Rural Parasitology, Institute of Rural Medicine and Hygiene, Lublin. Director: Uminski, Jerzy, dr. (for Stroczyńska, Tos-Luty, Uminski).

BARTOSZEWSKI, A.; TOS-LUTY, S.; UMINSKI, J.; SIKORSKI, R.

Toxoplasmosis according to data of the gynecological and obstetric clinic of the Academy of Medicine in Lublin; preliminary report. Wiadomosci parazyt., Warsz. 4 no.5-6:423; Engl. transl 423-424 1958.

1. Z Kliniki Ginekol. Polozn. Ak. Med. I Zakladu Parazytologii DPM w Lublinie.

(PREGNANCY, compl.
toxoplasmosis, hosp. statist. (Pol))

(TOXOPLASMOSES, in pregn.
hosp. statist. (Pol))

STROCZYNSKA, Maria; SIKORSKI, Radzislaw; UMINSKI, Jerzy

Trichomoniasis in rural environment. Wiadomosci parazyt. 7 no.2:
453-456 '61.

1. Zaklad Parazytologii Wiejskiej Inst. Med. Pracy i Hig. Wsi i I
Klinika Chorob Kobietych i Poloznictwa A.M., Lublin.

(TRICHOMONAS INFECTIONS statist)

SIKORSKI, Radzislaw; BARTOSZIEWSKI, Adam

Prophylactic therapy of congenital toxoplasmosis. Polski tygod. lek.
16 no.18:668-671 1 Mj '61.

1. Z I Kliniki Chorob Kobietych i Poloznictwa AM w Lublinie; kierownik:
prof. dr St. Liebhart.

(TOXOPLASMOSIS in pregn) (PREGNANCY compl)

2

LIENHART, Radzislaw

SURNAME (in caps); Given Names

Country: Poland

Academic Degrees:

Affiliation: First Clinic for Obstetrics and Women's Diseases, School of
Medicine (AM - Akademia Medyczna), Lublin; Director: St.
LIENHART, Prof. dr.

Source: Warsaw, Polski Tygodnik Lekarski, No 18, 1 May 1961, pp 668-671.

Data: "Prophylactic Treatment of Congenital Toxoplasmosis."

Co-author:

BARTOSZEWSKI, Adam ✓

SIKORSKI, Radzislaw; PLESZCZYNSKA, Ewa

Serological examination of pregnant women for listeriosis. Pol. tyg.
lek. 17 no.5:172-175 29 Ja '62.

1. Z I Kliniki Położnictwa i Chorob Kobietych AM w Lublinie; kierownik:
prof. dr Liebhart i z Zakładu Mikrobiologii Lekarskiej AM w Lublinie;
kierownik: prof. dr J. Parnas.
(PREGNANCY compl) (LISTERIA INFECTIONS in pregn)

STROCYNSKA, Maria; SIKORSKI, Ladzislaw; UMINSKI, Jerzy

Examination of women for *Trichomonas vaginalis* in rural foci of infection. *Wiad. parazyt.* 10 no.1:33-40 '64.

1. Zaklad Parazytologii Wiejskiej Instytutu Medycyny Pracy i Higieny Wsi i Klinika Chorob Kobietych i Poloznictwa Akademii Medycznej, Lublin.

1984, 1985, 1986

Proprietary or human reproductive material. Misc. (cont'd).
1984-1985-1986.

Treatment of acute toxoplasmosis in animals infected experimen-
tally with *Toxoplasma gondii*. 1985-1986.

1. Klinika i Laboratoriuma Diagnostyka Akademii Medycznej.
Lublin. 1. Zaklad Diagnostyki Mikroskopijno-Scopijno Medycyny i Sanj-
tologii. Lublin.

SIKORSKI, Jerzy

Control of staphylococci in surgical wards. Pol. przegl. chir.
37 no.9:879-883 S 65.

1. Z I Kliniki Chirurgicznej AM w Poznaniu (Kierownik: prof.
dr. S. Nowicki).

SIKORSKI, ROMAN

Sikorski, Roman: On the Cartesian product of metric spaces. Fund. Math. 31, 288-292 (1947).

Let X be an arbitrary metric space and let Y be a locally separable metric space. If $D(Z)$ denotes the set of points of the space Z at which the set Z is of second category, then, for $X \subset \mathbb{R}^n$ and $Y \subset \mathbb{R}^n$, $D(X \times Y) = D(X) \times D(Y)$. Similar results are given for the property of Baire.

E. Hewitt (Seattle, Wash.)

Handwritten signature

Source: Mathematical Reviews,

Vol. 10, No. 1

SIKORSKI, R

Marczewski, R., and Sikorski, R. Measures in non-separable metric spaces. Conloquium Math. 1, 133-139 (1948).

The main result of this paper is a necessary and sufficient condition in order that a metric space X have the following property: for each finite Borel measure μ in X there is a decomposition (1) $X = N + S$, where $\mu(N) = 0$ and S is separable. This condition is: there is a set Y of the same power as some basis of X and such that every finite measure defined for all subsets of Y and vanishing for all one-point sets, vanishes identically. If this condition is satisfied, then the decomposition (1) exists also for every σ -finite Borel measure in X .

H. M. Schaef (St. Louis, Mo.)

Handwritten signature

Source: Mathematical Reviews,

Vol. 10, No. 1

Sikorski, R.

Sikorski, R. On a generalization of theorems of Banach and Kantor-Bernstein. Colloquium Math. 1, 140-144 (1948).

If A is a Boolean algebra and $B \subseteq A$, then the author designates by BA the set of all elements $A \in A$ such that $A \subseteq B$. As usual A' denotes the complement of A . The author proves the following generalizations, to Boolean algebras, of a theorem of S. Banach [Fund. Math. 6, 236-239 (1924)] and of Kantor-Bernstein's equivalence theorem. Let A and B be two σ -complete Boolean algebras; let $A \subseteq A$ and $B \subseteq B$. (1) If f and g are two σ -homomorphisms of A in BA and of B in BA , respectively, then there exist two elements $C \in A$ and $D \in B$ such that $f(C) = D'$ and $g(D) = C'$. (2) If A is isomorphic to B and B to BA , then A and B are isomorphic. A. Rosenthal (Lafayette, Ind.).

Source: Mathematical Reviews,

Vol. 10 No. 5

Sikorski, R

Sikorski, R. On the separability of topological spaces. *Conoquium Math.* 1, 279-284 (1948).

The author considers six properties of a topological space X , ranging from (1) X has a countable base to (6) every collection of disjoint open sets of X is countable. Completing results of Marczewski (1947); these [Fund. Math. 34, 127-143; Rev. 9, 98], the author shows by examples that, apart from the known implications between these properties, no other logical connections can hold among them for all topological spaces. A. H. Stone.

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SMW

Source: Mathematical Reviews,

Vol. 11 No. 1

Sikorski, R.

Sikorski, R. Remarks on a problem of Banach. Colloquium Math. 1, 285-288 (1948).

The problem in question is to characterize those metric spaces X which have the property: (B) there exists a continuous one-to-one mapping of X onto a compact metric space. After giving simple examples of spaces with and without this property, the author gives a characterization in terms of semi-continuous decompositions, and deduces that the complement, in a compact metric space, of a null sequence of disjoint closed sets has property (B). [A more general theorem is stated (theorem (II), p. 287) but the argument given is inadequate, as the decomposition P there constructed will not in general be semi-continuous.]

A. H. Stone (Manchester).

Source: Mathematical Reviews.

Vol. 11 No. 1

Stone

SIKORSKI, ROMAN

Sikoraki, Roman. On the representation of Boolean algebras as fields of sets. Fund. Math. 35, 247-251 (1948).

The author studies conditions on an m -complete Boolean algebra A in order that it be representable as an m -additive field of sets, where m is an infinite cardinal number. This review will be limited to three indicative results. (1) In case A is a quotient algebra X/I of an m -additive algebra of sets X by an m -additive ideal I , it is shown that a sufficient condition is that I be semi-principal, that is, that I be the ideal of all sets of X which are subsets of a fixed set X_0 (not necessarily in X) and that this condition is also necessary if every two-valued m -additive measure on X is trivial (i.e., is

counter-example that it is not sufficient. (3) The author gives another proof, similar to that announced by Halmos [Bull. Amer. Math. Soc. 54, 1083 (1948)] of the theorem that if $m = \aleph_0$, then every m -complete Boolean algebra A is realizable as a quotient X/I , where X is an m -additive field of sets and I is an m -additive ideal in X , and he shows by a

concentrated at a point). (4) A σ -compact space is said to satisfy the condition (M) if whenever a nonempty element A is broken down dyadically, e.g., as in the breakdown of the unit interval into halves, quarters, eighths, etc., there is at least one decreasing sequence with nonvoid intersection. The condition (M) is necessary in order that A be isomorphic to a σ -field of sets, but the author shows by a

counter-example that the theorem is false if $m \geq 2^m$.
L. H. Loomis (Cambridge, Mass.)

Handwritten initials

Source: Mathematical Reviews,

Vol. 10 No. 7

MARCZEWSKI, E.
SIKORSKI, R.

Marczewski, E., and Sikorski, R. Remarks on measure and category. Colloq. Math. 2, 13-19 (1949).

The purpose of this paper is to present various conditions on a Borel measure in a topological space sufficient to ensure the existence of (*) a decomposition of the space into a set of measure zero and a set of the first category. The authors give a simple proof of the fact that (*) exists for Hausdorff measures in separable metric spaces. A cardinal number m is said to have measure zero if every finite measure defined on the class of all subsets of a set of power m vanishes identically whenever it vanishes on all finite sets. If a metric space contains a dense subset whose power has measure zero, then (*) exists for every σ -finite measure that vanishes on all finite sets. For nonmetric spaces this result is false: there exists a finite Borel measure μ in a compact Hausdorff space such that $\mu(X) = 0$ if and only if X is of the first category.
P. R. Halmos (Chicago, Ill.)

Sikorski, R.

Sikorski, R. On an unsolved problem from the theory of Boolean algebras, *Colloquium Math.* 2, 27-29 (1949).

Let $S(X)$ be the Boolean algebra of all subsets of a set X . An ideal I of $S(X)$ is a principal ideal if it contains exactly those sets of $S(X)$ which are subsets of some fixed set A . The quotient algebra is then isomorphic to $S(X-A)$ and is complete. The author raises the question as to whether there exists an ideal I which is not principal such that S/I is complete, and he proves the following theorem. Let I be an ideal containing all one-point sets, and let m be the least cardinal such that there exists a class Y of potency m such that I is formed of all subsets of sets belonging to Y . Then, if there exists a class Z of potency m of disjoint sets which do not belong to I , the quotient algebra $S(X)/I$ is not complete.
L. H. Loomis (Cambridge, Mass.)

Source: *Mathematical Reviews*, Vol 12 No. 9.

SMW

SIKORSKI, ROMAN

1000

Sikorski, Roman. On the inducing of homomorphisms by mappings. Fund. Math. 34, 7-22 (1949).

Let X and Y be fields of subsets of the sets X and Y , and let I and J be ideals of elements of X and Y , respectively. This paper studies conditions under which (a) to a given homomorphism f of Y/J in X/I there is a mapping ϕ of X into Y which induces f in the following sense: if \mathcal{Y} belongs to the class of sets $\{ \mathcal{Y} \} \in Y/J$, then $\phi^{-1}(\mathcal{Y}) \in \{ [\mathcal{Y}] \}$; (b) every homomorphism of Y/J in X/I is induced by some mapping of X into Y ; (c) the last assertion holds for σ -homomorphisms instead of homomorphisms; (d) two mappings of X into Y induce the same homomorphism of Y into X/I .

Several results are obtained under various assumptions on the fields and ideals. For example, if $X/I = X$, $Y/J = Y$, then (a) is equivalent to the representability of X as

$$\bigcup_{x \in Y} \bigcap_{y \in \mathcal{Y}} f(y)$$

and (b) with the property that every finitely additive measure on Y , which assumes the values 0 and 1 only, is trivial; if Y is a subset of the real line (completed by $\pm \infty$) and if Y/J is the field of all Borel sets relative to Y , then (c) holds if and only if Y is a Eorel set. H. M. Schaerf.

Source: Mathematical Reviews,

Vol 11 No. 3

SMW

Sikorski, Roman

2

Sikorski, Roman. Closure algebras. Fund. Math. 36, 103-200 (1949).

This paper treats σ -complete Boolean algebras A in which there is defined a closure operation satisfying, formally, Kuratowski's axioms. Examples are $S(X)$ and $B(X)$, where these are the classes of all, and of Borel, subsets of a topological space. One may ask whether an A can be represented as an $S(X)$ or whether the subclass $B(A)$ of "Borel elements" in A can be represented by some $B(X)$. Sometimes neither is possible. Special attention is given to C -algebras A , in which there exist a sequence of open elements R_1, R_2, \dots such that every open G is the sum of those R_n such that $R_n \subseteq G$. It is shown that if A is a C -algebra, then $B(A)$ is isomorphic to $B(S(X)/I)$ where X is a separable metric space and I is a σ -ideal in $S(X)$. The problem of defining convergence for sequences of homeomorphisms of C -algebras is also treated.
R. Arens (Los Angeles, Calif.)

Source: Mathematical Reviews,

Vol. 11, No. 1

Jan 1950

SIKORSKI, ROMAN

copy

Sikorski, Roman. A theorem on the structure of homomorphisms. Fund. Math. 36, 245-247 (1949).

Let \mathfrak{S} be the set of all prime ideals of an arbitrary σ -complete Boolean algebra A . In this paper classes Z and N of subsets of \mathfrak{S} are defined so that the following statements are true: (a) N is a σ -ideal and A is isomorphic to Z/N ; (b) if A_1 is an arbitrary σ -complete Boolean algebra which is σ -homomorphic to A , and if Z_1 and N_1 are defined for A_1 in the same way as Z and N for A , then the resulting homomorphism of Z/N in Z_1/N_1 is induced by a mapping of the set \mathfrak{S}_1 of all prime ideals of A_1 in the set \mathfrak{S} . (The term "induced" in statement (b) has the same meaning as in the author's related paper same vol., 7-22 (1949); these Rev. 11, 106.]

Source: Mathematical Reviews,

Vol. 12, No. 2

STAN

SIKORSKI, R.

1950

Sikorski, R. Independent fields and Cartesian products.
Studia Math. 11, 171-184 (1950).

The principal purpose of this paper is to establish the equivalence of the theory of (countably) independent collections of Boolean $\{0, 1\}$ -algebras and the theory of Cartesian products. On the way the author presents a detailed discussion of the pertinent facts concerning the extendability of Boolean homomorphisms. The essential idea (i.e., a proof of Banach's extension theorem by the introduction of a suitable product space) is the same as that given by S. Sherman [Amer. J. Math. 72, 612-614 (1950); these Rev. 12, 15]. The reception dates of the two papers differ by two days.
P. R. Halmos (Chicago, Ill.).

Source: Mathematical Reviews,

Vol. 12 No. 6

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Sikorski, Roman

~~Sikorski, Roman. On algebraic extensions of ordered fields. Ann. Soc. Polon. Math. 22 (1949), 173-184 (1950).~~

The author shows that an ordinal number and a certain compactness property of an ordered field F are inherited by the real closure or algebraic closure of F .

I. Kaplansky (Chicago, Ill.).

Source: Mathematical Reviews,

Vol 11 No. 9

2

SMW

S. Sikorski, Roman

25

Sikorski, Roman. On an analogy between measures and homomorphisms. Ann. Soc. Polon. Math. 23, 1-20 (1930).

The author's program in this paper is to generalize to Boolean homomorphisms the statements obtained by specializing known measure theoretic extension theorems to two-valued measures. A typical result is that every σ -homomorphism from a subalgebra A_0 of a σ -algebra A into a σ -algebra B of sets can be extended to the least σ -algebra containing A_0 . (The assumption that B is a σ -algebra of sets is essential.)
P. R. Halmos (Montevideo).

Source: Mathematical Reviews,

Vol 12 No. 8

SM 2/2

Nikoradi, Roman Cartesian products of Boolean algebras.
Fund. Math. 37, 25-54 (1950).

The author presents a detailed study of the concept of Cartesian product (perhaps better called tensor product) of Boolean algebras. The principal difficulty arises in defining the tensor product of a family of σ -algebras so as to obtain a σ -algebra suitably related to the given factors. Two obvious conditions that the product might be required to satisfy are (1) that the isomorphism class of the product be uniquely determined by the isomorphism classes of the factors, and (2) that prescribed homomorphisms (or measures) on the factors be extendable to the product. The author points out that none of the obvious definitions of product satisfies both conditions. He proceeds, therefore, to study various extremal (i.e., maximal or minimal) products, and to show that they usually satisfy one of the two conditions. The technique involves, as is to be expected, heavy use of Stone's theory of topological representations.

P. R. Halmos (Montevideo).

Source: Mathematical Reviews,

Vol. 12, No. 8

SIKORSKI, ROMAN

Sikorski, Roman. Remarks on some topological spaces of

ring power. *Fund. Math.* 37, 125-136 (1950).

The spaces $X(\omega_\alpha)$ considered satisfy Kuratowski closure axioms: I. There is an ordinal ω_α such that if $X_\xi, \xi < \alpha < \omega_\alpha$, is a sequence of sets then $\sum_{\xi < \alpha} X_\xi = \sum_{\xi < \alpha} X_\xi$. II. If X is finite then

$\bar{X} = X$. III. For all $X, \bar{X} = \bar{X}$. If $\mu = 0$ these are equivalent to the classical axioms. If $\mu > 0$ it is required that ω_μ be a regular ordinal. The theory developed has elements in common with that of C. Goffman and the reviewer [*Trans. Amer. Math. Soc.* 66, 65-74 (1949); these Rev. 11, 44]. It is proved that if $\mu > 0$ and $X(\omega_\mu)$ is regular then it is 0-dimensional. A basis for $X(\omega_\mu)$ is a sequence $G_\xi, \xi < \omega_\mu$, of open sets such that every open set is the union of a subsequence of the G_ξ . An extension of the Urysohn metrization theorem is stated: If $X(\omega_\mu)$ is regular and has a basis then it is metrizable in an ordered field. (Necessary and sufficient conditions that a topological space be metrizable in an ordered group have been established by the authors mentioned above [*Proc. Amer. Math. Soc.* 1, 750-753 (1950); these Rev. 12, 434].) It is stated that every compact metrizable $X(\omega_\mu)$ is complete and totally bounded. The concepts here are obtained from the classical ones by replacing ω_μ by ω_μ and "finite" by " $< \aleph_\mu$ ". An example is given to show that the converse of this theorem is false if $\mu > 0$. In this connection several problems are stated on the relation between compactness and the accessibility of the cardinal \aleph_μ . The author concludes with a generalization of a theorem of Stone on Boolean algebras [*Trans. Amer. Math. Soc.* 41, 375-481 (1937)]. A Boolean algebra K is called ω_μ -complete if, for every $C \subset K$ where $\aleph(C) < \aleph_\mu$, the union of all elements $A \in C$ is in K . A space $X(\omega_\mu)$ is called ω_μ -bicomplete if every open covering $\{G_\xi\}$ of $X(\omega_\mu)$ contains a subcovering $G_\xi, \xi < \alpha < \omega_\mu$. It is shown that: An ω_μ -complete Boolean algebra K is isomorphic with the field of subsets of an ω_μ -bicomplete regular $X(\omega_\mu)$ which are both open and closed if and only if every ω_μ -additive proper ideal of K is contained in an ω_μ -additive-prime ideal of K .

COHEN

L. W. Cohen.

Source: Mathematical Reviews.

SIKORSKI, R.

Rasiowa, H., and Sikorski, R. A proof of the completeness theorem of Gödel. Fund. Math. 37, 193-200 (1950).

Following Lindenbaum, let $E(\beta)$ denote the class of all formulas γ which are equivalent to β , where β and γ are formulas of the first order functional calculus. If we define $E(\beta) \cup E(\gamma) = E(\beta \vee \gamma)$ and $E(\beta)' = E(\sim\beta)$, then the set of all classes $E(\beta)$ forms a Boolean algebra B^* . Using Stone's theorem and the category method of argument it is shown that for any nonprovable formula α there is a prime ideal p^* in B^* such that in the 2-element Boolean algebra B^*/p^* we have $[E(\alpha)] = 0$ and for all β , $\bigcup_{p \in I} [E(\beta(x_p))] = [E(\forall x_p \beta)]$, where I = the set of integers, $\beta(x_p)$ is any formula obtained from β by substituting x_p for all occurrences of x in any alphabetic variant of β in which x_p is not bound, and

$[E(\beta)]$ is the element of B^*/p^* determined by $E(\beta)$. By methods of Mostowski we can define a function Φ_p^0 of formulas β onto the 2-element Boolean algebra with elements 0 and 1 such that Φ_p^0 assumes the value 1 (0) if and only if β ($\sim\beta$) is satisfiable. Then it is shown that in B^*/p^* we have $\Phi_p^0 = [E(\beta)]$ for all β . In particular, $\Phi_p^0 = [E(\alpha)] = 0$, i.e. α is not satisfiable, which proves Gödel's theorem.

I. L. Novak (Princeton, N. J.)

Source: Mathematical Reviews,

Vol

12 No. 9

SIKORSKI, ROMAN

Sikorski, Roman. On an ordered algebraic field. Soc. Sci. Lett. Varsovie. C. R. Cl. III. Sci. Math. Phys. 41 (1948), 69-96 (1950). (English. Polish summary)

This is a study of ordered rings and fields from the point of view of ordered sets. It is shown that all elements of an ordered ring have symmetrical and equal characters, and that the cofinal character is equal to the coinitial character. This latter character is called the character of the ring. If an ordered field has the character ω_μ , then every element has the character $[\omega_\mu, \omega_\mu]$.

Using Hessenberg's "natural sum" and "natural product" the author constructs a minimal ordered ring C_μ and a minimal ordered field F_μ with character ω_μ (ω_μ a regular initial ordinal). In C_μ every element has the character $[1, 1]$ and every gap has a character $[\omega_\nu, \omega_\nu]$ where $\nu < \mu$. If $\mu > 0$, then W_μ has the property (BW_μ) : Every bounded ω_μ -sequence contains a convergent ω_μ -subsequence. All known ordered fields with the property (BW_μ) have potency \aleph_μ . On the other hand W_0 is the field of rational numbers, and the only ordered field having the property (BW_0) is the field of real numbers whose potency is $2^{\aleph_0} > \aleph_0$.

B. Jónsson (Providence, R. I.).

Source: Mathematical Reviews,

Vol 12 No 1
Sikorski

SIKORSKI, R.

Sikoraki, R. On measures in Cartesian products of Boolean algebras. *Colloquium Math.* 2, 124-129 (1951).

The author presents a definition of Cartesian product for Boolean algebras, equivalent to that of Kappos [Math. Ann. 120, 43-74 (1947)] (the latter concept Kappos has proved that if each factor carries a (finite, non-negative, finitely additive) measure, then the product carries, in a natural way, a unique product measure. Kappos, moreover, asserted that if the factors are countably additive measures on σ -algebras, then the product measure is also countably additive. The author constructs an example proving that the latter assertion is false.
P. R. Halmos (Montevideo).

SMW *207*

Source: **Mathematical Reviews,**

Vol 13 No 3

SIKORSKI, R.

Sikorski, R. On the existence of the generalized limit. Sudia Math. 12, 11:124 (1951).

Let A be a directed system; an A -sequence x is a function defined on A with values in a topological space X . Let $L(x)$ be the set of cluster points of x , that is, $L(x) = \{y | \forall \alpha \in A \text{ there exists } \beta > \alpha \text{ such that } x \in U\}$; let $C(x)$ be the closure in X of the set of values $\{x_\alpha | \alpha \in A\}$. Then x is called a compact A -sequence if $C(x)$ is a compact Hausdorff space.

This paper contains a definition, based on the compactification B of A regarded as a space with the discrete topology, of a generalized limit for every compact A -sequence. Let i be the A sequence defined by the identity mapping of A into B , and let β_0 be a point of B not in A . Then every compact A -sequence x can be regarded as a continuous image of A under the mapping $\alpha \rightarrow x(\beta)$ carrying $C(x)$ into $C(x)$; this mapping has a unique extension $\beta \rightarrow x(\beta)$ carrying all of B into $C(x)$. Let $\text{Lim } x_\alpha = x(\beta_0)$. For compact A -sequences, $\text{Lim } x_\alpha = \text{Lim } x_\alpha$.

(1) $\text{Lim } x_\alpha = L(x)$; hence if x is convergent $\text{Lim } x_\alpha = \text{Lim } x_\alpha$. (2) If $x_\alpha = y_\alpha$ for all $\alpha > \alpha_0$, then $\text{Lim } x_\alpha = \text{Lim } y_\alpha$. (3) If S is a set of indices and if, for each $\alpha \in S$, x^α is a compact A -sequence in a topological space X^α , and if F is a continuous mapping of the topological product $\prod_{\alpha \in S} C(x^\alpha)$ into a Hausdorff space, then $F(\{x^\alpha\})$ is a compact A -sequence and $\text{Lim } F(\{x^\alpha\}) = F(\{\text{Lim } x^\alpha\})$; consequently Lim commutes with continuous algebraic operations such as addition in a topological group. This is used to prove existence of an

invariant average for functions from an Abelian semigroup into compact convex subsets of linear topological spaces. M. M. Day (Urbana, Ill).

Handwritten initials: JMW and JZ

Source: Mathematical Reviews.

Vol 13 No. 2

SIKORSKI, R.

"On Multiplication of Determinants in Banach Spaces." In English. P. 219.
(GEODEZJA I KARTOGRAFIA, Vol. 1, No. 6, 1953, Warszawa, Poland.)
(Polska Akademia Nauk.)

SO: Monthly List of East European Accessions, (REAL), LC, Vol. 3,
No. 12, Dec. 1954, Uncl.

SIAORSKI, R.; RASICWA, H.

"On Satisfiability and Decidability in Nonclassical Functional Calculi." In English.
P. 229,
(GEODEZJA I KARTOGRAFIA, Vol. 1, No. 6, 1953, Warszawa, Poland.)
(Polska Akademia Nauk.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3,
No. 12, Dec. 1954, Uncl.

SIKORSKI, R.

Sikorski, R. On multiplication of determinants in Banach spaces. *Bull. Acad. Polon. Sci. Cl. III.* 1, 219-221 (1953).

The note announces a theorem for products of Fredholm determinants of linear functional transformations on linear normed complete spaces. The basis is essentially that of Lezanski [*Studia Math.* 13, 244-276 (1953); these Rev. 13, 535] except that the linear transformation T is replaced by a transformation T_p derived from the linear functional F on \mathfrak{R} ; the Fredholm determinant $D(F)$, depending only on F , is similar to that used by A. F. Ruston [*Proc. London Math. Soc.* (3) 1, 327-384 (1951), p. 362; these Rev. 13, 468] and the product $F \cdot G$ is subject to the condition $F \cdot G(K) = \tau(KT_p)$ for every K of \mathfrak{R} . T. H. Hildebrandt.

1/3

Rasiowa, H., and Sikorski, R. On satisfiability and decidability in non-classical functional calculi. Bull. Acad. Polon. Sci. Cl. III. 1, 229-231 (1953).

Rasiowa, H., and Sikorski, R. Algebraic treatment of the notion of satisfiability. Fund. Math. 40, 62-95 (1953).

Let S be a consistent system of sentential calculus containing at least \neg, \cdot, \rightarrow , possibly other sentential operators. The rules of inference are modus ponens and substitution and all theorems of the positive sentential calculus are theorems of S . Then S determines a corresponding system S^* of functional calculus with individual variables x_1, x_2, \dots , k argument functional variables F_1^k, F_2^k, \dots and quantifiers \sum_{x_i}, \prod_{x_i} , with the usual rules of inference. The theorems of S^* are all substitutions of theorems of S and their consequences. S determines an abstract algebra (S -algebra) with algebraic operations corresponding to the logical operations and with unit element e . If an S -algebra is a complete lattice, it is called an S^* -algebra. It is assumed that S -algebras A have the property: given an enumerable set of infinite sums and products in A , $a_n = \sum_i a_{n,i}, b_n = \prod_i b_{n,i}$, then there is an isomorphism of A into an S^* -algebra which preserves these sums and products. Let J be a non-empty set, A an S^* -algebra. Each formula $a \in S^*$ can be interpreted as an algebraic functional $(J, A)\phi_a$. A set RCS^* is said to

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KASIOVA, II.

be satisfiable in $J \neq 0$, if there is an S^* -algebra A such that all the functionals $(J, A)\phi_a$ ($a \in R$) assume the value $e \in A$ for a common (independent of a) substitution for the variables x_i , F_m^* . The set R is satisfiable if it is satisfiable in a set $J \neq 0$. A formula $a \in S^*$ is valid if $(J, A)\phi_a = e \in A$ for every $J \neq 0$ and every S^* -algebra A . Let I be the set of positive integers. S_c denotes the classical, S_L the Lewis, S_H the Heyting, S_p the positive sentential calculus. The first of these two papers announces the following results. Theorem I. A formula a is provable in S^* if and only if a is valid (or: if a is valid in the set I , i.e. if $(I, A)\phi_a = e \in A$ identically for each S^* -algebra A). Each consistent set $RC S^*$ is satisfiable in the set I . Theorem II. If the system S contains the negation sign and if the formula $(\neg(\sigma \rightarrow \sigma)) \rightarrow \tau$ is a theorem in S , then each satisfiable set $RC S^*$ having the deduction property is consistent and satisfiable in the set I .

If X is a topological space then $C(X)$ ($H(X)$) denotes the class of all subsets (of all open subsets) of X . Then $C(X)$ is an S_c -algebra (with the usual operations $a+b$, $a \cdot b$, and $a \rightarrow b = (X-a)+b$, $\neg a = X-a$, $\Box a =$ the interior of a), and $H(X)$ is an S_H -algebra and S_p -algebra (with the usual operations $a+b$, $a \cdot b$, and $a \rightarrow b =$ the interior of $((X-a)+b) - (a \rightarrow 0)$).

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cont

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Theorem III. There is a topological space X such that:
 (i) a formula $\alpha \in S_X^*(S_X^*, S_r^*)$ is provable if and only if $(I, C(X))_{\Phi, \alpha} = X$ ($I, H(X)_{\Phi, \alpha} = X$) identically, (ii) a set $RC S_X^*(S_X^*, S_r^*)$ having the deduction property is satisfiable if and only if it is satisfiable in I and in $C(X)$ ($H(X)$).
 From Theorem III (i) follows Theorem IV: A formula $\alpha \in S_r^*(S_X^*)$ is provable in $S_r^*(S_X^*)$ if and only if it is provable in S_X^* (in S_X^* provided that the expressions $\beta \rightarrow$, $-\beta$, Π_{x_i} , β of S_X^* are interpreted in S_X^* as $\square(\beta \rightarrow)$, $\square(-\beta)$, $\square \Pi_{x_i}$, β respectively). Theorem V. Let $\alpha, \beta \in S_X^*(S_X^*, S_r^*)$. $\square \Pi_{x_i} \beta$ respectively). Theorem V. Let $\alpha, \beta \in S_X^*(S_X^*, S_r^*)$. If $\square \alpha + \square \beta$ is provable in S_X^* (in S_r^* , in S_r^*), then either α or β is provable in $S_X^*(S_X^*, S_r^*)$. If $\sum_{x_i} \square \alpha$ ($\sum_{x_i} \alpha$) is provable in $S_X^*(S_X^*, S_r^*)$, then there is an integer q such that the substitution $\alpha(x_i)$ is provable in $S_r^*(S_X^*, S_r^*)$.

Theorem VI. Each formula $\beta \in S_X^*(S_X^*, S_r^*)$ of the form $\beta \in \Sigma_{x_i}$, where α contains no quantifier and Z is a sequence of the signs Σ_{x_i} , \square , Π_{x_i} (of the signs Σ_{x_i} and Π_{x_i}), is decidable. Similar theorems also hold for the minimal functional calculus S_r^* determined by the minimal sentential calculus S_r .

The second paper gives detailed proofs of Theorems I-IV and a few related results. The methods used are generalizations of the topological methods first used by the authors to give a proof of the Gödel completeness theorem.

I. Novek Gál (Ithaca, N. Y.).

SIKORSKI, R.

Sikorski, R. On Leszafski's determinants of linear equa-
tion spaces. Studia Math. 14 (1953), 24-48.
(1954)

This is a detailed exposition of the author's note in Bull. Acad. Polon. Sci. Cl. III. 1, 219-221 (1953); these Rev. 15, 719. It extends the product theorem of the paper reviewed above to the case when linear function Φ on \mathfrak{A} satisfies the condition $\Phi(A_1 A_2 \cdots A_n) = \Phi(A_2 A_1 \cdots A_n A_1)$ for any A_1, \dots, A_n of \mathfrak{A} . The author also summarizes the Leszafski-Fischer determinant theory and gives a more satisfactory setting for the adjoint equation. *T. H. Hildebrandt.*

SIKORSKI, R.

Mathematical Reviews
Vol. 14 No. 11
Dec. 1953
Topology

Sikorski, R. Generalized limits and means. *Ann. Soc. Polon. Math.* 25 (1952), 106-109 (1953).

A semigroup G is called solvable if there is a sequence $G_0 \subseteq G_1 \subseteq \dots \subseteq G_n = G$ of subsemigroups such that for each i , $1 \leq i \leq n$, (a) if $\varphi \in G_i$ and $\psi \in G_{i-1}$, then there is a $\psi^* \in G_{i-1}$ such that $\psi^* \varphi = \varphi \psi$; (b) if $\varphi, \psi \in G_i$, then there is $\psi^* \in G_{i-1}$ such that $\varphi \psi = \psi^* \varphi$; (c) G_0 contains only the unit element of G . This paper extends the results of the author's earlier note [*Studia Math.* 12, 117-124 (1951); these Rev. 13, 216] on the existence of average values for maps from a set T into compact convex subsets of linear topological spaces with some invariance properties under a semigroup G of functions from T into T , by weakening the hypothesis from G abelian to G solvable. *M. M. Day* (Urbana, Ill.).

HO CHI, H.

"A Definition of the Region of Distribution", H. HO, (WISNA AKADEMIA
WIAK, Vol. 2, No. 1, 1954, Warsaw, Poland).

LC: Monthly List of East European Accessions (EIAL), LC, Vol. 4, No. 3,
March 1955, incl.

SIKORSKI, R.

3

Sikorski, R. Closure homomorphisms and interior map-

ings Fund. Math. 41, 12-20 (1954).
A closure algebra A [Sikorski, Fund. Math. 36, 165-206 (1949) these Rev. 12, 85] has three basic operations: enumerable addition, complementation, closure. A closure homomorphism of A into B is a function preserving these operations; also there is the concept of closure homeomorphism. If X is a topological space, $C(X)$ denotes the closure algebra of all subsets of X . If $f: X \rightarrow Y$ is continuous, then f is interior if and only if $f^{-1}: C(Y) \rightarrow C(X)$ is a closure homomorphism. If the cardinality of Y is less than the first aleph inaccessible in the strict sense, then Y is an interior image of X if and only if $C(Y)$ is homeomorphic with a closure subalgebra of $C(X)$. The aim of the paper is to study representations of closure algebras A with enumerable basis. It is proved that such an algebra A is weakly homeomorphic with a closure quotient algebra $C(X)/I$ where X is a T_0 -space with an enumerable basis and I is a σ -ideal. It is conjectured that such a $C(X)$ is homeomorphic to a complete closure subalgebra of $C(Y)$ for some separable metric space Y . That is, it is conjectured that every T_0 -space with an enumerable basis is an interior image of a separable metric space. E. E. Floyd (Charlottesville, Va.).

Sikorski, R.

Rasiowa, H., and Sikorski, R. On existential theorems in non-classical functional calculi. Fund. Math. 41, 21-28 (1954).

I - F/W

Let \mathcal{H}_x be the Heyting propositional calculus, S_x^* the Heyting functional calculus. The authors here prove the following theorem: If the formula $\alpha + \beta$ is provable in S_x^* , then either α or β are provable in S_x^* . If the formula $\sum_{x \in X} \alpha$ is provable in S_x^* , then there is a positive integer q such that the formula $\alpha \left(\begin{smallmatrix} x_1 \\ \vdots \\ x_q \end{smallmatrix} \right)$ is provable in S . This is a generalization of a result first stated by Gödel [Ergebn. Math. Kolloq. 4, 39-4) (1933)]. Corresponding theorems for the positive functional calculus, the minimal functional calculus and the Lewis functional calculus are also included.

I. Novak Gdl (Ithaca, N. Y.)

①

SIKORSKI, R.

Sikorski, R. On the determination of measure by a
 function of an elementary figure. *Prace Mat. 1* (1955),
 285-291. (Polish. Russian and English summaries)
 The following theorem is well-known: For each non-
 negative additive function ϕ of an elementary figure in R_n ,
 there exists a Borel measure μ whose value on each closed
 interval P_0 is the greatest lower bound of the values of ϕ
 on closed intervals containing P_0 in their interior. The
 author proves it anew by mapping R_n into an auxiliary
 topological space R^* so that ϕ induces a content on a ring
 K of compact subsets of R^* . Then the measure on the
 σ -ring generated by K to which this content can be
 extended induces μ .

H. M. Schaerf.

1 - P/W

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SIKORSKI, R.

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Sikorski, R. On σ -complete Boolean algebras. Bull. Acad. Polon. Sci. Cl. III. 3 (1955), 7-9.

Marczewski raised the question, whether it is possible to characterize the class of all σ -complete Boolean algebras B , which are isomorphic to σ -fields of sets, by means of conditions using at most m variables, m being a fixed cardinal. It is shown that the answer is negative for all cardinals m less than the smallest strongly inaccessible cardinal, provided we restrict ourselves to conditions of the form: for every $x_0, x_1, \dots, V(x_0, x_1, \dots)$, where V is such that $V(a_0, a_1, \dots)$ holds in B if and only if it holds in the smallest relatively complete subalgebra of B which contains a_0, a_1, \dots

B. Jónsson.

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Polackie towarzystwo matematyczne

Prace Matematyczne, II, 1 (Mathematical Transactions, Vol. 2, pt. 1). Warszawa, Panstwowe wyd-wo naukowe, 1956. 200 p. 790 copies printed.

Editorial Committee: Wladyslaw Orlicz (Chief Ed.), Stefan Drobos (Deputy Chief Ed.), Adam Bielecki, Stanislaw Hartman, Jan Mikusinski, Roman Sikorski, Marcell Stark, Hanna Szmielewska, Krzysztof Tatarkiewicz, and Wlodzislaw Wrona.

PURPOSE: This book is intended for mathematicians.

COVERAGE: This collection of articles deals with the theory of numbers, algebra, and some other subjects connected with the theory of algebraic numbers. The pursuit method of the theory of algebraic numbers is the subject of a Polish mathematician K. Zuranski, consisting mainly of a discussion of his mathematical work. In parentheses are indicated references and summaries in Russian and English are given after several of the articles.

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Reports From Scientific Sessions Held at the Polish Mathematical Society

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SIKORSKI, R.

Sikorski, R. On the Vitali theorem. Prace Mat. **E-FIW**
(1956), 146-151. (Polish, Russian and English summaries)

The well-known theorem of Vitali on the covering of sets up to a set of Lebesgue measure 0 is generalized for other measures μ which are countably additive and satisfy the following conditions: (1) μ is defined in a countably additive ring of sets \mathfrak{M} containing all Borel sets; (2) a set $A \in \mathfrak{M}$ if and only if there exist Borel sets A_1 and A_2 such that $A_1 \subset A$, $A - A_1 \subset A_2$, $\mu(A_2) = 0$; (3) $\mu(A) < \infty$ for all bounded $A \in \mathfrak{M}$. This theorem is proved, for the one-dimensional case, in a very concise fashion, forming a modification of the well-known proof by Banach of the original Vitali theorem.

Some consequences of this theorem, for example, the theorem on the existence almost everywhere of a derivative of a function of bounded variation, follow in the same manner from Vitali's theorem.

J. R. Ulan (Los Alamos, N.M.)

S. J. IKORSKI R.

Sikorski, R., and Traczyk, T. On some Boolean algebras.
Bull. Acad. Polon. Sci. Cl. III, 1957

5
I-FW

SIKORSKI R. TRACZYK, T. S.
into \mathcal{A} where $\mathcal{B}(\mathcal{A})$ is the σ -field of all Borel subsets

14. [unclear] [unclear] [unclear]

Sam
MT

SIKORSKI, R.

"A theorem on nonclassical functional calculi. In English."

p. 649 (Bulletin) Vol. 4, no. 10, 1956
Varsovie, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

Mikusinski, J.; and Sikorski, R. The elementary theory of distributions. I. *Rozprawy Mat.* 12 (1957), 54 pp.

Distributions (in the sense of Schwartz and Sobolev) are defined as classes of equivalent fundamental sequences. A sequence $\{f_n\}$ of continuous functions on (a, b) is called fundamental if for some k there is a sequence $f_n^{(-k)}$ of antiderivatives of order k which converges almost uniformly on (a, b) ; $\{f_n\}$ is called equivalent to $\{g_n\}$ if there are sequences $\{f_n^{(-k)}\}$ and $\{g_n^{(-k)}\}$ which are almost uniformly convergent to the same function; a class of equivalent fundamental sequences is called a distribution (of finite order). This is essentially the definition given by the first author and, with considerably more detail, by the reviewer [for references see the preceding reviews].

The authors give an excellent treatment of the elementary theory of distributions of finite order, which should be of great value to physicists and engineers. This first installment deals with the following topics: derivatives of distributions, distributions as derivatives of continuous functions, convergence of sequences and series of distributions, multiplication of distributions by infinitely differentiable functions, the distribution $f(\varphi)$, where f is a distribution and φ an infinitely differentiable function, integrable functions and functions with poles as distributions, local equality of distributions, the value of a distribution at a point, existence theorems for values, the value of a distribution at infinity, the definite integral of a distribution, periodic distributions.

★ ~~Sikor~~ ki Roman. Funkcje rzeczywiste. [Real func-
~~tion~~ Vol. 1. Monografie Matematyczne. Tom
XXIV. Państwowe Wydawnictwo Naukowe, Wars-
zawa, 1958. 534 pp. zł. 55.00. 2

This book contains the first two of the three parts of a treatise on the theory of functions of a real variable. Of its eleven chapters, the first two are an introductory exposition of sets, functions, classes of sets, and metric spaces; the next three chapters deal with continuity and convergence, and the remaining six are devoted to measure, integration, and differentiation. The second volume will contain chapters on function spaces, functional analysis, orthogonal and Fourier series, Fourier integral, and Schwartz' theory of distributions.

As for the general value of the book — unlike certain venerable (though outdated) Englishmen, the author has no desire to say everything, succeeding in it better, and unlike certain nameless Frenchmen, he confers mathematical maturity instead of demanding it. In spite of the modest claims in the preface, the completed work will represent an outstanding treatise and text.

By an explicitly stated preference, the author limits himself to subject matter with considerable applications.

RB
1/3

Sikorski, Roman.

For instance, the integrals of Denjoy, Perron, Burkill, and (seemingly uncountably many) others are not introduced. On the other hand, the Lebesgue integral is treated exhaustively: definition and elementary properties, integral as a set-function, examples in Euclidean space, finite and infinite product measures, and multiple and iterated integrals, interchange with various limit operations, integration by parts and by substitution, connections with differentiability and differentiation, integration and differentiation with respect to a parameter, and so on. The RS and LS integrals are likewise treated.

2

The author likes to motivate his definitions and proofs, and there are plenty of examples and counter-examples, both in the text and in the several hundred valuable exercises.

Partial list of the contents of the first five chapters: sets and functions, algebra of sets, real series and sequences Cartesian products, theory of power, Boolean rings and algebras, real-valued functions, measurability with respect to an additive structure, metric spaces, metric topology, Borel fields, F_σ and G_δ classifications, Euclidean spaces, pseudometrics, isometries and homeomorphisms, topological spaces, limits, convergence and continuity in metric spaces, oscillation, semicontinuity,

RB
2/3

Sikorski, Roman,

uniform continuity and equicontinuity, function spaces and Weierstrass' theorem, Baire classes, category and functions, analytic representation of functions, ordinal numbers and Borel classification, transfinite induction, upper and lower Young classes.

Some more obvious omissions: Haar measure, Stone

RB
3/3

Weierstrass theorem, Tychonov theorem, Banach fixed-point theorem. Also, there are many small misprints, and the index, though good, could be better. Z. A. Melzak.

SIKORSKI, R.

16(1) PHASE I BOOK EXPLOITATION SOV/2660
Vsesoyuznyy matematicheskiy s'yezd. 3rd, Moscow, 1956
Trudy. t. 3: Kratkoye sodzhananiye sektionalnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 3: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.
Techs. Ed.: G.M. Shestakov; Editorial Board: A.A. Abramov, V.O. Boltyanskiy, A.M. Gant'man, B.V. Medvedev, A.D. Myshkis, S.M. Nikolskiy (pres. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Shabat, P. L. Ul'yanov, V.A. Uspenskiy, M.O. Chetaev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.
COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main volumes. The first volume contains the summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases where the non-Soviet scientist did not submit a copy of the paper to the editor, the title of the paper is cited, and the paper was printed in a previous volume. Soviet and non-Soviet cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

- Burakowski, E. (Poland). On spaces of sets connected in n-dimensions 200
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RASIOWA, H. (Warszawa); SIKOLSKI, R. (Warszawa)

On the Gentzen theorem. In English. Fund.mat. 48 no.1:57-69 '59.

(Zbl 9:5)

(Aggregates)

(Algebra)

SIKORSKI, R. (Warszawa)

Distributivity and representability. In English. Fund.mat. 48 no.1:
91-103 '59. (Zbl 9:5)
(Algebra) (Aggregates)

SIKORSKI, R.

The determinant theory of the Carleman type. Bul Ac Pol mat 8 no.10:
685-689 '60.

1. Institute of Mathematics, Polish Academy of Sciences. Presented
by E. Marczewski.

(Determinants)

SIKORSKI, R.

On substitutions in the Dirac delta distribution. Bul Ac Pol mat 8
no.10:691-694 '60.

1. Institute of Mathematics, Polish Academy of Sciences. Presented
by E. Marczewski.

(Distribution(Probability theory)

SIKORSKI, Roman, prof., dr.

Report of the Main Executive Board on the activities of the Polish
Mathematical Society in 1959. Rocznik matematyczny 4 no.2:211-220 '61.

1. Deputy Chairman of the Polish Mathematical Society.

(Poland--Mathematics)

SIKORSKI, R. (Warsaw)

Representation and distributivity of Boolean algebras. Col math 8
no.1:1-13 '61. (Zbl 10:5)

(Algebra, Boolean) (Aggregates)

SIKORSKI, Roman (Warsaw)

On the definition of multi-valued analytic functions. Col math 8 no.2:
267-269 '61.

SIKORSKI, R.

A topological characterization of open theories. *Bul Ac Pol Mat* 9
no.4:259-260 '61.

1. Institute of Mathematics, Polish Academy of Sciences. Presented
by E. Marczewski.

SIKORSKI, Roman (Warszawa)

On the Carleman determinants. Studia math 20 no.3:327-346 '61.

(Determinants)